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IS 5480 (1983): Automobile polish, paste [CHD 23: Lac, Lac Products and Polishes]

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**IS : 5480 - 1983**  
**(Reaffirmed 2008)**  
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**(1992-08)**

***Indian Standard***

**SPECIFICATION FOR**  
**AUTOMOBILE POLISH, PASTE**

***(First Revision )***

(Incorporating Amendment No. 1)

UDC 665.921:629.113

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

**Price Group 3**

*Indian Standard*

SPECIFICATION FOR  
AUTOMOBILE POLISH, PASTE  
*(First Revision)*

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Polishes Sectional Committee, CDC 48

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DR D. K. MURTHY

*Representing*

Ministry of Defence (DGI)

*Members*

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Dr D. K. Murthy)

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CHEMIST & METALLURGIST,  
SOUTHERN RAILWAY,  
MADRAS

Central Leather Research Institute (CSIR), Madras  
Research, Designs and Standards Organization,  
Lucknow

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METALLURGIST, DLW,  
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SHRI P. MAJUMDER

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*Indian Standard*  
**SPECIFICATION FOR  
AUTOMOBILE POLISH, PASTE**  
*(First Revision )*

**0. FOREWORD**

**0.1** This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 June 1983, after the draft finalized by the Polishes Sectional Committee had been approved by the Chemical Division Council.

**0.2** Automobile polishes are required to perform three principal functions. First of these is the removal of traffic film, which is slightly greasy in nature and to which particles of dust and dirt adhere. The second is restoration of the original finish by removal of a very thin layer of decomposed lacquer which eventually renders a car lustreless and the third is the polishing of the newly exposed lacquer surface and to provide a thin wax coating which protects the surface.

**0.3** This standard was originally published in 1969. In the light of technological developments, the committee responsible for the preparation of this standard decided to revise it. In this revision the requirements pertaining to composition, application, performance, ash of non-volatile matter and flash point have been suitably modified; besides addition of new requirements in abrasive content, etc.

**0.4** This edition 2.1 incorporates Amendment No. 1 (August 1992). Side bar indicates modification of the text as the result of incorporation of the amendment.

**0.5** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**1. SCOPE**

**1.1** This standard prescribes requirements and methods of sampling and test for wax-solvent paste type polish for automobiles.

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\*Rules for rounding off numerical values (*revised*).

## 2. TERMINOLOGY

**2.1** For the purpose of this standard the definitions given in IS : 8171-1976\* and the following shall apply.

**2.2 Approved/Tender Sample** — The tender sample, if approved, shall serve as standard for application and performance only. The supplier shall submit the tender sample not less than  $3 \times 500$  g of the material.

## 3. REQUIREMENTS

**3.1 Composition** — The polish shall consist essentially of waxes and solvents in suitable proportions and it may or may not contain a fine inert abrasive of particle size not more than 53 micron.

**3.2 Colour** — The product shall not impart any colour of its own to the polished finish.

**3.3 Odour** — The material shall not have disagreeable odour.

**3.4 Consistency** — The material shall be a smooth, homogeneous and compact semisolid mass free from grit.

**3.5 Stability** — It shall maintain its original consistency and shall not separate into its constituents when kept at 45°C for 6 hours nor shall it become too hard for easy application when kept at 5°C for 6 hours.

NOTE — A tolerance of  $\pm 2^\circ\text{C}$  is permitted on both the higher and the lower temperature.

**3.6 Application and Performance** — The polish shall be capable of smooth, uniform and easy application.

**3.6.1** The polish shall be applied to the finished surface of metal panels by means of a pad or soft cloth and rubbed with circular motion of hand to produce high gloss. The finished surface shall be examined for the shine produced and this shall not be inferior to the approved tender sample.

**3.6.2** The polish shall be easily buffable within 3 to 4 minutes of its application and at the same time shall not present any difficulty for buffing if the polish film is left for a longer period.

**3.6.3** The polish film shall display the required toughness under tropical conditions. It shall not catch dust, shall have the requisite water repellency and shall not crack under varying conditions of temperature.

**3.6.4** The polish surface shall maintain its shine at least for the same period as that of approved tender sample when both are exposed to identical weathering conditions.

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\*Glossary of terms relating to polishes and related materials.

## IS : 5480 - 1983

**3.7** The material shall also comply with the requirements given in Table 1.

**TABLE 1 REQUIREMENTS FOR AUTOMOBILE POLISH PASTE**  
(*Clauses 3.7, 6.1 and J-4.1* )

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST (REF TO APPENDIX)
(1)	(2)	(3)	(4)
i)	Non-volatile matter, percent by mass	25 to 30	A
ii)	Melting point of non-volatile matter, °C <i>Min</i>		B
	Initial	61	
	Final	72	
iii)	Ash of non-volatile matter, percent by mass, <i>Max</i>	3.5	C
iv)	Acid value of non-volatile matter, <i>Max</i>	5	D
v)	pH of water extract	6 to 8	E
vi)	Distillation yield of volatile portion, between 150° and 275°C, percent by volume, <i>Min</i>	90	F
vii)	Flash point of volatile portion, °C, <i>Min</i>	30	F
viii)	Water content, percent by mass, <i>Max</i>	2.0	G
ix)	Residue on 53-micron IS Sieve	Traces	H

**3.8 Keeping Quality** — The material shall retain its consistency and shall comply with the requirements of this specification for one year from the date of actual delivery to the consignee when stored in its original sealed containers under cover at atmospheric temperature (21 to 38°C).

## 4. PACKING AND MARKING

**4.1 Packing** — The polish shall be packed in lever-lid type metal containers to contain 200 or 500 g when packed or as agreed to between the purchaser and the supplier.

**4.1.1** The containers shall be packed in cardboard boxes in lots of 80 in case of 200 g containers and 40 in case of 500 g containers or as agreed to between the purchaser and the supplier.

**4.2 Marking** — The containers shall be marked with the following:

- a) Manufacturer's name and trade-mark, if any;
- b) Net mass of the material when packed;
- c) Name of the material;
- d) Instructions for use; and
- e) Other provisions of *Packaged Commodity Act*

**4.2.1** The containers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors may be obtained from the Indian Standards Institution.

## 5. SAMPLING

**5.1** For the purpose of ascertaining the conformity of the material to this specification, representative samples shall be drawn as prescribed in Appendix J.

## 6. TEST METHODS

**6.1** Representative samples of the material shall be tested in accordance with the methods referred to in col 4 of Table 1.

**6.2 Quality of Reagents** — Unless specified otherwise pure chemicals and distilled water (*see IS : 1070-1977\**) shall be used in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

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\*Specification for water for general laboratory use (*second revision*).

## APPENDIX A

[ *Table 1, Item (i)* ]

### DETERMINATION OF NON VOLATILE MATTER

#### A-1. PROCEDURE

**A-1.1** Weigh accurately about 3 g of the material as quickly as possible in a tared flat-bottomed dish of approximately 8 cm diameter provided with a cover. Heat without the cover on a steam-bath, for about 4 hours and then in an air-oven at 110 to 120°C for 16 hours. Cool and weigh. Simultaneously prepare non-volatile residue by the same procedure from about 40 g of the sample for further tests.

#### A-2. CALCULATION

$$\text{Non-volatile matter, percent by mass} = \frac{100 B}{A}$$

where

$B$  = mass in g of the non-volatile residue, and

$A$  = mass in g of the sample taken for the test.

NOTE — Special precautions should be taken so that the vapours are not ignited or an explosive mixture is not formed.

## APPENDIX B

[ *Table 1, Item (ii)* ]

### DETERMINATION OF MELTING POINT OF NON-VOLATILE MATTER

#### B-1. APPARATUS

##### B-1.1 Porcelain Crucible

##### B-1.2 Sand-Bath

##### B-1.3 Thermometer — Sensitive to 0.1 deg.

#### B-2. PROCEDURE

**B-2.1** Place a portion of the non-volatile matter (about 50 mg) obtained as in **A-1.1** on the surface of clean mercury, preferably freshly distilled, contained in the porcelain crucible. Place the crucible on the sand-bath and hang vertically the thermometer and adjust its height in such a way that the bulb of the thermometer dips in the mercury. Heat the sand-bath slowly so that the temperature rises at a rate not exceeding

2°C per minute. When the temperature reaches about 55°C, raise the temperature at the rate of 1°C per minute. Shift the material on mercury with the tip of an ordinary pin after every 1°C rise of temperature. Note the temperature when the material on being shifted leaves a slight stain. Note this temperature as the initial temperature of melting.

**B-2.2** Continue heating until the material completely loses shape. Note this temperature as the final melting point of the non-volatile matter.

## APPENDIX C

[Table 1, Item (iii)]

### DETERMINATION OF ASH OF NON-VOLATILE MATTER

#### C-1. PROCEDURE

**C-1.1** Weigh accurately about 2 g of the non-volatile residue obtained as in A-1.1 in a tared porcelain crucible. Ignite to constant mass, cool in a desiccator before each weighing.

#### C-2. CALCULATION

$$\text{Ash of non-volatile matter, percent by mass} = \frac{100 B}{A}$$

where

$B$  = mass in g of the ash, and

$A$  = mass in g of the non-volatile residue.

## APPENDIX D

[Table 1, Item (iv)]

### DETERMINATION OF ACID VALUE OF NON-VOLATILE MATTER

#### D-1. PROCEDURE

**D-1.1** Weigh accurately about 5 g of the non-volatile matter of the sample obtained as in A-1.1 in a 250-ml conical flask. Add 25 ml of the solvent (*see Note*) and heat under reflux until dissolved. Add a few drops of phenolphthalein indicator and titrate with alcoholic potassium

## **IS : 5480 - 1983**

hydroxide solution until faintly pink. Determine the normality of the alcoholic potassium hydroxide solution with standard hydrochloric acid.

NOTE — Solvent for this test shall consist of a mixture of equal volumes of toluence and ethanol, neutral to phenolphthalein.

### **D-2. CALCULATION**

$$\text{Acid value} = \frac{56.1 V N}{W}$$

where

$V$  = volume in ml of the potassium hydroxide solution required,

$N$  = normality of the potassium hydroxide solution, and

$W$  = mass in g of the material taken for the test.

## **A P P E N D I X E**

[ *Table 1, Item (v)* ]

### **DETERMINATION OF pH OF WATER EXTRACT**

#### **E-1. PROCEDURE**

**E-1.1** Add about 15 g of the material to 100 ml of water in a beaker. Heat with stirring till all the wax has melted. Allow to cool to a temperature of  $27^\circ \pm 2^\circ\text{C}$ . Separate the aqueous layer from the wax cake and determine its pH using a pH meter with a glass electrode.

## **A P P E N D I X F**

[ *Table 1, Items (vi) and (vii)* ]

### **DETERMINATION OF DISTILLATION YIELD AND FLASH POINT OF VOLATILE PORTION**

#### **F-1. PROCEDURE**

**F-1.1** Place about 400 g of the material in a suitable distillation flask and distil the solvent in vacuum. Dry the distillate by shaking with anhydrous magnesium sulphate.

**F-1.2** Determine the distillation yield of the distillate as obtained in **F-1.1** by the method prescribed under 7 of IS : 82-1973\* between 150° and 275°C.

**F-1.3** Determine the flash point of the distillate obtained as in **F-1.1** by the method prescribed in IS : 1448 (P : 20)-1960†.

## **APPENDIX G**

[ *Table 1, Item (viii)* ]

### **DETERMINATION OF WATER CONTENT**

#### **G-1. PROCEDURE**

**G-1.1** Determine the water content of the material by the method given in **5.3** of IS : 548 (Part I)-1964‡, taking about 100 g of the polish accurately weighed in the distillation flask.

## **APPENDIX H**

[ *Table 1, Item (ix)* ]

### **DETERMINATION OF RESIDUE ON SIEVE**

#### **H-1. PROCEDURE**

**H-1.1** Weigh 20 g of the material into a 800-ml beaker, add 500 ml of mineral turpentine, cover with a watch glass and digest on a steam bath for one hour. Disperse the solid matter by stirring vigorously and pour hot liquid and the solid matter through a 53-micron IS Sieve. Wash the material retained on the sieve with two or more 200 ml portions of hot mineral turpentine until no more solid passes through. Dry the sieve at  $105 \pm 2^\circ\text{C}$  for 2 hours, cool and transfer the solid particles to a tared and previously weighed dish by means of a soft camel hair brush. Heat at the above temperature to constant mass.

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\*Methods of sampling and test for thinners and solvents for paints (*first revision*).

†Methods of test for petroleum and its products. P : 20 Flash point by Abel apparatus.

‡Methods of sampling and test for oils and fats (*revised*).

## APPENDIX J

(Clause 5.1)

### SAMPLING OF AUTOMOBILE POLISH, PASTE

#### J-1. GENERAL REQUIREMENTS FOR SAMPLING

**J-1.0** In drawing, preparing, storing and handling test samples, the following precautions and directions shall be observed.

**J-1.1** Samples shall be taken in a protected place not exposed to damp air, dust or soot.

**J-1.2** The sampling instrument shall be clean and dry when used.

**J-1.3** Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

**J-1.4** To draw a representative sample vertical sections of the paste at uniformly placed point shall be taken and mixed as thoroughly as possible by suitable means.

**J-1.5** Samples shall be placed in clean, dry and airtight glass containers or other suitable containers on which the material has no action.

**J-1.6** The sample container shall be of such a size that they are almost completely filled by the sample.

**J-1.7** Each sample container shall be sealed airtight after filling and marked with full details of sampling, the date of sampling and the year of manufacture of the material.

**J-1.8** Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

#### J-2. SCALE OF SAMPLING

**J-2.0** Samples to determine the conformity of a consignment of automobile polish to this specification shall be selected so as to be representative of the consignment. Samples drawn in compliance with an agreement between the purchaser and the supplier to evaluate the various characteristics of the polish shall be held to be the representative of the consignment. In case of dispute, the following sampling scheme is recommended to serve as a guide.

**J-2.1** **Lot** — All the containers in a single consignment of the material drawn from the same batch of manufacture and the same size shall constitute a lot. If a consignment is declared or known to consist of different batches of manufacture or of different sizes of containers, the

containers belonging to a same batch and size shall be grouped together and each such group shall constitute a separate lot.

**J-2.1.1** Samples shall be tested for each lot for ascertaining the conformity of the material to the requirements of this specification.

**J-2.2** The number of containers ( $n$ ) to be chosen from a lot shall depend upon the size of the lot ( $N$ ) and shall be in accordance with Table 2.

**J-2.3** These containers shall be chosen at random from the lot. In order to ensure the randomness of selection, some random number table as agreed to between the purchaser and the supplier shall be used. In case such table is not available, the following procedure shall be adopted:

Arrange all the containers in the lot in a systematic manner and starting from any container, count them as 1, 2, 3... up to  $r$  and so on where  $r$  is the integral part of  $N/n$ . Every  $r$ th container thus counted shall be withdrawn to give sample for test.

**TABLE 2 NUMBER OF CONTAINERS TO BE SELECTED**

LOT SIZE	No. OF CONTAINERS TO BE SELECTED
$N$	$n$
Up to 500	10
501 to 1000	15
1 001 and above	20

### **J-3. PREPARATION OF COMPOSITE SAMPLE**

**J-3.1** Draw with a cork borer of approximately 2 cm diameter whole vertical sections of the material from different points on a surface from the containers selected according to **J-2.2**. The total quantity of material drawn from each container shall be the same and shall not exceed 80 g.

**J-3.2** Thoroughly mix all the portions of the material drawn from different containers by means of a mechanical stirrer taking care not to keep the temperature of the mixture below 45°C, so as to form a composite sample weighing not less than 700 g.

### **J-4. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY**

**J-4.1** Test for consistency (see 3.4) and all the characteristics given in Table 1 shall be conducted on the composite sample.

**J-4.2** The lot shall be declared as conforming to this specification if the test results satisfy the relevant specified requirements.

# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous Intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

## Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	$1 \text{ N} = 1 \text{ kg.m/s}^2$
Energy	joule	J	$1 \text{ J} = 1 \text{ N.m}$
Power	watt	W	$1 \text{ W} = 1 \text{ J/s}$
Flux	weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
Flux density	tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
Frequency	hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$
Electric conductance	siemens	S	$1 \text{ S} = 1 \text{ A/V}$
Electromotive force	volt	V	$1 \text{ V} = 1 \text{ W/A}$
Pressure, stress	pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$

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### **Amendments Issued Since Publication**

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## **BUREAU OF INDIAN STANDARDS**

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002.  
Telephones: 323 01 31, 323 33 75, 323 94 02

Telegrams: Manaksanstha  
(Common to all offices)

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	Telephone 323 76 17 323 38 41
Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700054	{ 337 84 99, 337 85 61 337 86 26, 337 91 20
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 60 38 43 60 20 25
Southern : C. I. T. Campus, IV Cross Road, CHENNAI 600113	{ 235 02 16, 235 04 42 235 15 19, 235 23 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 832 92 95, 832 78 58 1832 78 91, 832 78 92
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